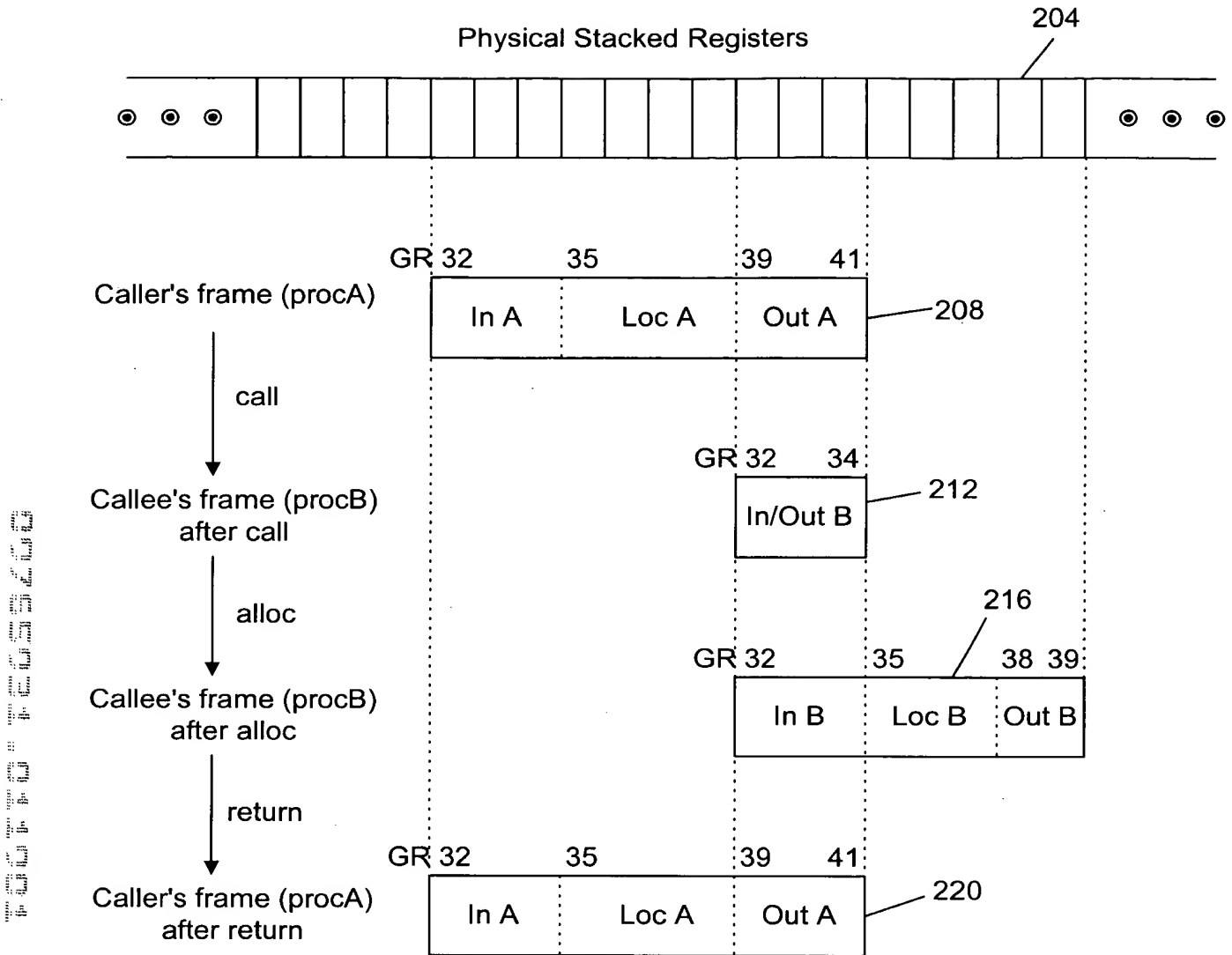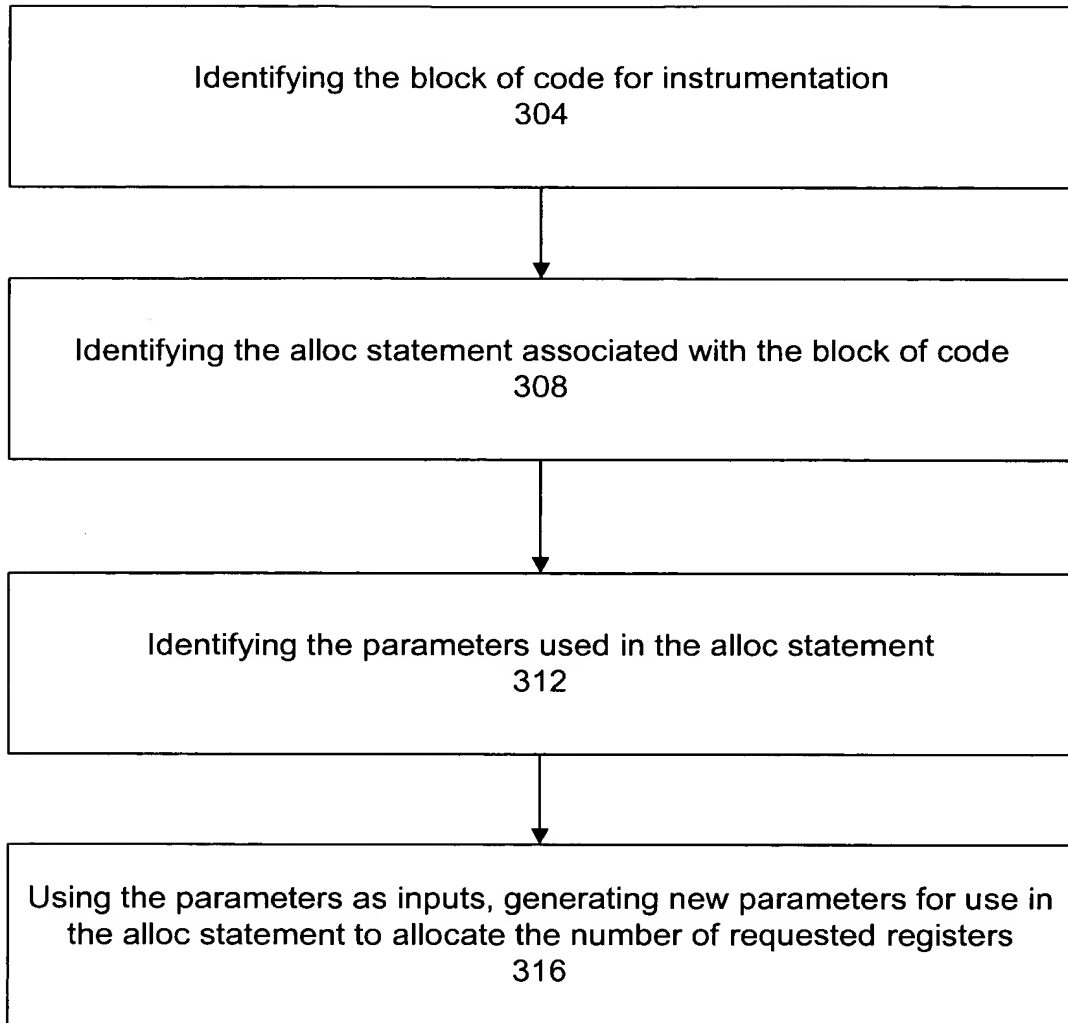| Statement	Input	Local	Output
1	alloc (..., 3, 5, 2, ...)	GR32, GR33, GR34	GR35, GR36, GR37, GR38, GR39	GR40, GR41
2	alloc (..., 2, 4, 1, ...)	GR32, GR33,	GR34, GR35, GR36, GR37	GR38

FIG. 1

Physical Stacked Registers

204

| ● ● ● | | | | | | | | | | | | | | | | | | | | | | | ● ● ● |

Caller's frame (procA)

GR 32   35   39   41

| In A | Loc A | Out A |

208

↓ call

Callee's frame (procB)
after call

GR 32   34

| In/Out B |

212

↓ alloc

Callee's frame (procB)
after alloc

216

GR 32   35   38 39

| In B | Loc B | Out B |

↓ return

Caller's frame (procA)
after return

GR 32   35   39   41

| In A | Loc A | Out A |

220

FIG. 2

Identifying the block of code for instrumentation
304

Identifying the alloc statement associated with the block of code
308

Identifying the parameters used in the alloc statement
312

Using the parameters as inputs, generating new parameters for use in the alloc statement to allocate the number of requested registers
316

FIG. 3

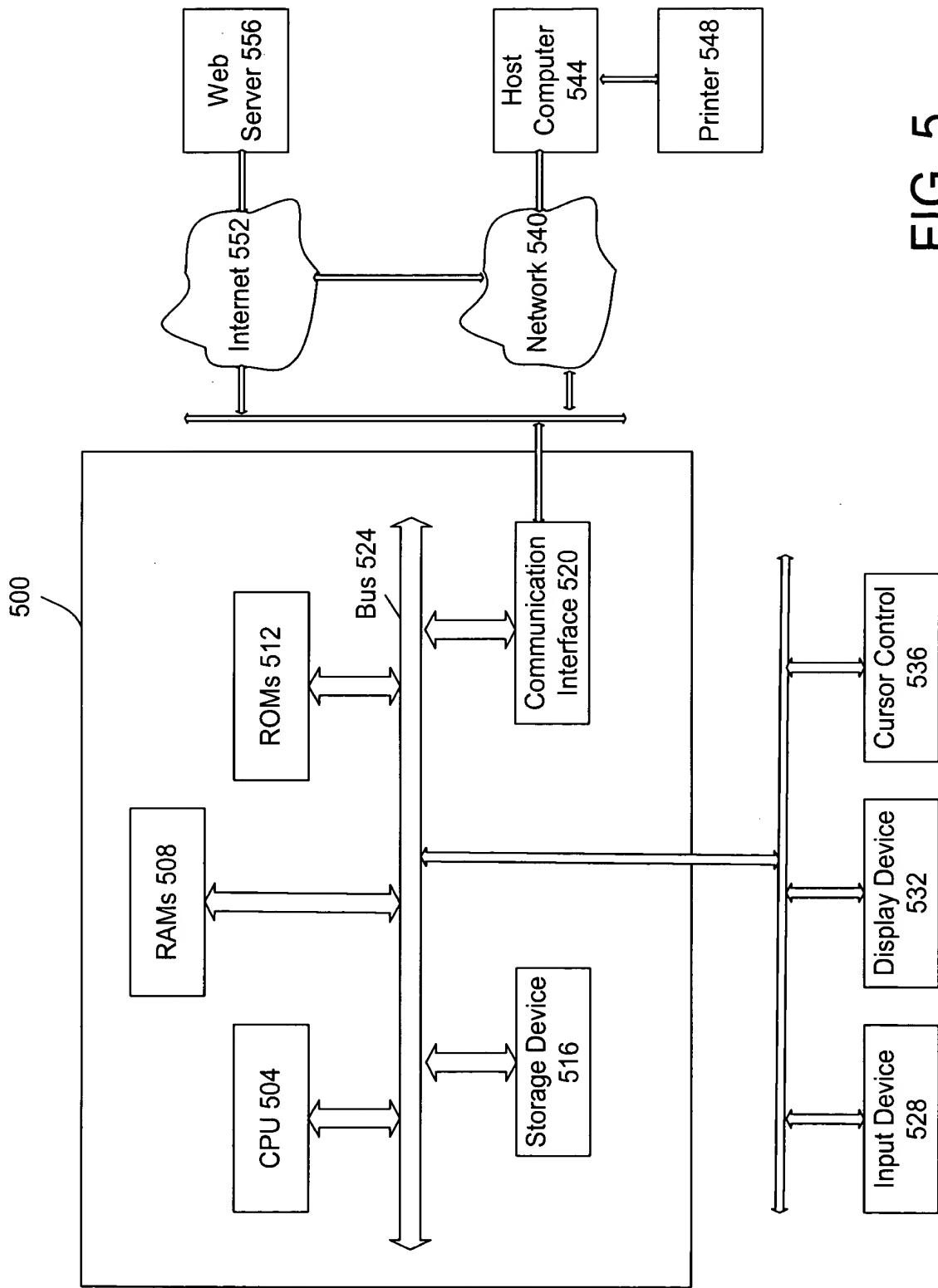| Statement	Input	Local	Output
1	alloc (..., 3, 5, 2, ...)	GR32, GR33, GR34	GR35, GR36, GR37 GR38, GR39	GR40, GR41
2	alloc (..., 3, 5, 6, ...)	GR32, GR33, GR34	GR35, GR36, GR37 GR38, GR39	GR40, GR41, RG42 GR43, GR44, GR45

FIG. 4

FIG. 5

Web Server 556

Host Computer 544

Printer 548

Internet 552

Network 540

500

Bus 524

ROMs 512

Communication Interface 520

RAMs 508

CPU 504

Storage Device 516

Display Device 532

Cursor Control 536

Input Device 528